ORIGINAL

0000146878

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS
BOB STUMP, Chairman
GARY PIERCE
BRENDA BURNS
BOB BURNS
SUSAN BITTER SMITH

IN THE MATTER OF THE COMMISSION'S INQUIRY INTO RETAIL ELECTRIC COMPETITION.	DOCKET NO. E-00000W-13-0135 **COMMENTS OF WESTERN RESOURCE ADVOCATES**

Western Resource Advocates (WRA) hereby submits its responses to several of the questions posed in the Executive Director's letter of May 23, 2013.

We appreciate the opportunity to provide these comments.

Respectfully submitted this 15th day of July 2013.

David Berry
Chief of Policy Analysis
Western Resource Advocates
PO Box 1064
Scottsdale, AZ 85252-1064
david.berry@westernresources.org

Original and 13 copies filed with Docket Control, 1200 W. Washington St., Phoenix, AZ 85007.

Responses of Western Resource Advocates to Questions on Retail Electric Competition
DOCKET NO. E-00000W-13-0135

Question 1: Will retail electric competition reduce rates for all classes of customers – residential, small business, large business and industrial classes?

Question 12: How have retail rates been affected in states that have implemented retail electric competition?

Response to Questions 1 and 12:

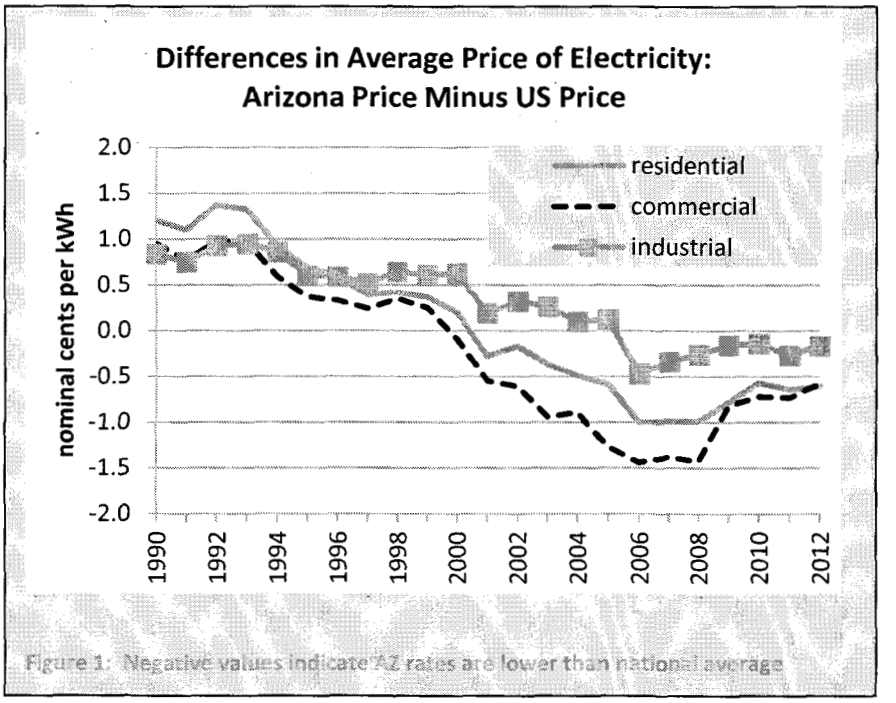

Figure 1: Negative values indicate AZ rates are lower than national average

One of the motivations for adopting retail electric competition is high regulated prices for electricity.[1] However, over the past several years, Arizonans have not paid especially high rates for electricity. Figure 1 shows the difference between the average price for electricity in Arizona minus the average price for electricity in the US.[2] In recent years, Arizona average prices have been lower than the national average (shown as negative price differences), especially for residential and commercial customers. For example, in 2011, the average residential price in Arizona was 11.08 cents per kWh and in the US it was 11.72 cents per kWh for a difference of -0.64 cents per kWh. Thus, consumer interest in retail competition may be muted, except for large industrial and commercial customers.

Evidence from studies conducted in the last few years on rate impacts of competition is mixed. States' experiences are idiosyncratic, in part because of the various ways states introduced competition, such as application of standard offer services and prices during a transition period. Moreover, no one study can provide a definitive answer to Questions 1 and 12 as every study has methodological limitations or worked with limited data.[3] Based on a review of 10 econometric and other studies of the price or cost impacts of retail electric competition, John

[1] Electric Market Competition Task Force. *Report to Congress on Competition in Wholesale and Retail Markets for Electric Energy*, 2007. See pp. 86-89; not every state which pursued competition had high electric rates.

[2] Data are from Energy Information Administration, *State Historical Tables for 2011* and *Electric Power Monthly*, February 2013. Prices pertain to the total electric industry which includes traditional regulated utilities plus various forms of competitive supply.

[3] John Kwoka, "Restructuring the U.S. Electric Power Sector: A Review of Recent Studies," *Review of Industrial Organization* 32 (2008): 165-196. Kwoka notes that studies conducted by consultants find that competition lowers electricity prices but that studies conducted by academics exhibit a greater diversity of conclusions.

Kwoka concluded that "despite much advocacy, there is little reliable and convincing evidence that consumers are better off as a result of the restructuring of the U.S. electric power industry."[4]

Among the findings from specific studies are the following:

- Swadley and Yücel found that moving to a competitive market (including transitional pricing) lowered residential prices in Texas, Connecticut, Maine and Pennsylvania, raised residential rates in California, Delaware, Illinois, Maryland, Michigan, New Jersey, and the District of Columbia, and had no measurable effect on residential rates in Massachusetts and New York. They concluded that "The effects of a competitive [residential] retail electricity market are mixed across states, but generally appear to lower prices in states with high participation and raise prices in states that have little customer participation."[5]
- Joskow found that electricity prices for residential and industrial customers decreased as a result of retail competition. He concluded that "There is growing evidence that competition can lead to cost and price reductions if policymakers will support the regulatory and institutional changes needed to allow competitive market forces to work. However, the creation of competitive market forces has also encountered some significant and costly problems and it is important that future policies reflect the lessons learned from this experience."[6]
- Retail prices charged by suppliers who primarily rely on natural gas resources may fluctuate more than prices charged by suppliers with a more diverse set of resources.[7]
- In general, participation in competitive markets is mainly by industrial and large commercial customers.[8]

Question 2. In addition to the possibility of reduced rates, identify any and all specific benefits of retail electric competition for each customer class.

Response to Question 2: Competition may lead to two types of economic changes – more efficient power plant operations and more fundamental changes in the way electricity is produced and marketed.

---

[4] Kwoka, op.cit., p. 165.

[5] Adam Swadley and Mine Yücel, "Did Residential Electricity Rates Fall After Retail Competition: A Dynamic Panel Analysis," *Energy Policy* 39: December 2011: 7702-7711. This paper is available as Federal Reserve Bank of Dallas Working Paper 1105, 2011, http://67.208.38.236/assets/documents/research/papers/2011/wp1105.pdf. Quote is from p. 1 of the Federal Reserve Bank of Dallas version.

[6] Paul Joskow, "Markets for Power in the United States: An Interim Assessment," *The Energy Journal* 27 (2006): 1-36. Quote from p. 33. Joskow's study examined impacts of competition on state-level average electricity prices separately for residential customers and industrial customers.

[7] See the discussion in Section 5 of: Jay Zarnikau, Marilyn Fox, and Paul Smolen, "Trends in Prices to Commercial Energy Consumers in the Competitive Texas Electricity Market," *Energy Policy* 36 (2007): 4332-4339. A similar conclusion can be drawn from Swadley and Yücel, op. cit., pp. 11-12 of the Federal Reserve Bank of Dallas version.

[8] Joskow, op. cit., p. 22. Philip O'Connor, *Retail Electric Choice: Proven, Growing Sustainable*, prepared for the Compete Coalition, April 3, 2012, p. 21.

Competition may induce greater efficiencies in power plant operations. One study found that, for the existing stock of power plants, "the plant operators most affected by restructuring reduced labor and nonfuel expenses, holding output constant, by 3 to 5 percent relative to other investor-owned utility plants, and by 6 to 12 percent relative to government- and cooperatively owned plants that were largely insulated from restructuring incentives."[9] However, the authors also found that "the data do not suggest gains in fuel efficiency from restructuring within our sample..."[10]

Another study[11] found that *merchant plants* using natural gas generation have smaller staffs and lower overall payroll costs than utility-owned natural gas plants. However, the author did not find that restructuring, defined as the passage of state-level restructuring legislation, had a significant effect on plant employment or payroll costs.

A third study[12] concluded that restructuring increased the thermal efficiency of investor-owned plants (measured by heat rates) by about 13 percent. Efficiency gains from market restructuring result from internal organizational and technological changes within the plant, and are not due to the attrition of inefficient plants from the sample over time.

One cannot conclude that greater efficiencies result in lower rates – they may primarily increase the profit of electricity suppliers.

More fundamentally, competition may introduce new technologies, new organizational models, and new marketing ideas as a result of market entry by entrepreneurs. Among these innovations are distributed solar energy, on-site energy storage, on-site microturbines, and microgrids (explained below). These kinds of innovations could have far more impact than competition based solely on central station supply from conventional resources. To foster this more fundamental competition, the Commission should pursue policies that encourage early adoption of these innovations.

A microgrid "is a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid and that connects and disconnects from such grid to enable it to operate in both grid-connected or island mode."[13] Elements of a microgrid are: demand reduction, on-site generation and storage, advanced controls, and automatic connection and disconnection from

---

[9] Kira Fabrizio, Nancy Rose, and Catherine Wolfram, "Do Markets Reduce Costs? Assessing the Impact of Regulatory Restructuring on US Electric Generation Efficiency," *American Economic Review* 97 (2007): 1250-1277, quote from p. 1251.

[10] Fabrizio, Rose, and Wolfram, op. cit., p. 1269.

[11] Jennifer Kaiser Shanefelter, "Restructuring, Ownership and Efficiency: The Case of Labor in Electricity Generation," Berkeley, CA: University of California Energy Institute, Center for the Study of Energy Markets, CSEM WP 161, 2006, http://www.ucei.berkeley.edu/PDF/csemwp161.pdf.

[12] J. Dean Craig and Scott Savage, "Market Restructuring, Competition and the Efficiency of Electricity Generation: Plant-level Evidence from the United States 1996 to 2006," University of Colorado at Boulder, Department of Economics, Working Paper 09-06, 2009, http://dirwww.colorado.edu/Economics/papers/Wps-09/wp09-06/wp09-06.pdf.

[13] Connecticut Public Act 12-148, section 7.

the utility grid.[14] An example is the Galvin microgrid at the Illinois Institute of Technology.[15] This project includes a distribution system, on-site solar and wind resources, energy storage, an 8 MW natural gas-fired power plant, and automated energy efficiency and demand response systems. The Commission's competition policy should encourage establishment of microgrids. The next steps in Arizona should include a review of technical, legal, and regulatory issues such as the scope of microgrid services, conflicts with utility franchise rights, interconnection with the utility system, sale of any excess energy, rates for utility-provided services, etc.

Question 9: Will retail electric competition impact reliability? Why or why not?

Response to Question 9: Addressing the adequacy of generating capacity should be a high priority for the Commission. Paul Joskow concluded that "Evidence from the U.S. and some other countries indicates that organized wholesale markets for electrical energy and operating reserves do not provide adequate incentives to stimulate the proper quantity or mix of generating capacity consistent with mandatory reliability criteria." He also found (in 2006) that "since 1998 there isn't a single year when energy market revenues covered the annualized capital costs of a peaking turbine."[16] Cramton and Stoft found that "Current energy markets underpay investors whenever investment brings capacity close to the adequate level. The result is that investment stops well before reaching the adequate level."[17] Another study concluded that "Instead of building new capacity that will be idle during most of the year, electricity producers [would] let the electricity price spike."[18] That is, electricity suppliers may rely on high prices to reduce demand during peak periods rather than invest in peak generating capacity. Thus, a competitive market may result in capacity shortfalls or very high peak prices or both.

This issue is playing out in Texas: "The debate over how to keep Texas' electricity grid from collapsing under the weight of high consumer demand on hot summer days is not expected to end anytime soon. ... [One proposal is to] start raising 'scarcity' rates for power companies earlier than is currently programmed [to] increase system stability." However, some of the cost increase would raise rates for consumers and some may have to be absorbed by competitive

---

[14] Robert Dohn, "The Business Case for Microgrids," Siemens, 2011. See also New York State Energy Research and Development Authority, *Microgrids: An Assessment of the Value, Opportunities and Barriers to Development in New York State*, Report 10-35, Albany, 2010.

[15] http://www.iitmicrogrid.net/microgrid.aspx.

[16] Paul Joskow, "Competitive Electricity Markets and Investment in New Generating Capacity," MIT Center for Energy and Environmental Policy Research, 06-009, 2006; quotes from pp. 58 and 29. http://dspace.mit.edu/bitstream/handle/1721.1/45055/2006-009.pdf?sequence=1.

[17] Peter Cramton and Steven Stoft, "The Convergence of Market Designs for Adequate Generating Capacity," A White Paper for the Electricity Oversight Board, 2006. Quote from p. 3. http://stoft.com/metaPage/lib/Cramton-Stoft-EOB-2006-04-ICAP-energy-convergence.pdf.

[18] Irena Milstein and Asher Tishler, "The Inevitability of Capacity Underinvestment in Competitive Electricity Markets," *Energy Economics* 34 (2012): 62-77. Quote is from p. 62.

suppliers.[19] In addition, Texas has faced potential power shortages due to reduced water supplies for power plant cooling during extended periods of drought.[20]

Question 14: Is retail electric competition compatible with the Commission's Renewable Energy Standard that requires Arizona's utilities serve at least 15% of their retail loads with renewable energy by 2025?

Question 15: Is retail electric competition compatible with the Commission's Energy Efficiency Standard that requires Arizona's electric utilities to achieve a 22% reduction in retail energy sales by consumption by 2020?

Response to Questions 14 & 15: Yes for both questions. Renewable energy standards and energy efficiency standards benefit society over the long run by accelerating the adoption of technologies that: a) have stable prices that hedge against fuel price volatility associated with conventional power generation, and b) emit little or no air pollutants. Conventional generation resources (coal, gas, and nuclear) expose customers to uncertain fuel price changes, coal-fired generation produces large quantities of CO_2, SO_2, NOx, and mercury emissions, and natural gas generation produces CO_2 emissions. Also, energy efficiency is the lowest cost resource.

Nationally, all 18 states (including the District of Columbia) with retail electric competition have a renewable energy standard and nearly all the states with retail electric competition have an energy efficiency standard or goal or target. See Table 1.

Renewable energy standards accelerate deployment of renewable energy. With respect to Texas, Jay Zarnikau stated that "It is unlikely that the competitive market alone would have produced this much renewable energy. While there was certainly evidence of consumer interest in renewable energy ..., little was actually developed until goals were established, responsibility was placed on load-serving entities to acquire sufficient RECs to meet their share of the goals, and other facilitating policies took hold."[21] This same logic applies to Arizona and the Renewable Energy Standard should be retained.

At present, Arizona lags most states in the installation of renewable energy resources as seen in Figure 2 which shows the percentage of total electric generation (MWh) by state in 2012 that comes from utility scale and large customer-sited solar, wind, geothermal, and biomass resources.[22] Arizona utilities import electricity from wind generation in New Mexico and from geothermal generation in California. The 250 MW Solana plant is expected to begin service in 2013 and that will increase Arizona's renewable energy production. Most of the capacity of large solar facilities in Arizona in 2012 served California utilities.

---

[19] James Osborne, "Texas Public Utility Commission Ponders Stopgap Measure for Electrical Grid," Dallasnews, June 27, 2013, http://www.dallasnews.com/business/energy/20130627-texas-public-utility-commission-ponders-stopgap-measure-for-electrical-grid.ece.

[20] See Western Resource Advocates, Resource Planning Comments, filed in Docket No. E-00000A-11-0113, September 7, 2012.

[21] Jay Zarnikau, "Successful Renewable Energy Development in a Competitive Electricity Market: A Texas Case Study," *Energy Policy* 39 (2011): 3906-3913; quote is from p. 3910.

[22] Data are from the Energy Information Administration, *Electric Power Monthly*, February 2013. .

Table 1. States with Retail Electric Competition and Clean Energy Standards

State	Retail electric competition	Renewable Energy Standard	Energy Efficiency Standard or Goal or Target
CA	Suspended*	Yes	Yes
CT	Yes	Yes	Yes
DC	Yes	Yes	No
DE	Yes	Yes	Yes
IL	Yes	Yes	Yes
MA	Yes	Yes	Yes
MD	Yes	Yes	Yes
ME	Yes	Yes	Yes
MI	Yes	Yes	Yes
MT	Suspended*	Yes	No
NH	Yes	Yes	No
NJ	Yes	Yes	No
NY	Yes	Yes	Yes
OH	Yes	Yes	Yes
OR	Yes	Yes	Yes**
PA	Yes	Yes	Yes
RI	Yes	Yes	Yes
TX	Yes	Yes	Yes

Sources: Philip O'Connor, op.cit, p. 21. Adam Swadley and Mine Yücel, op. cit., American Council for an Energy-Efficient Economy, *Energy Efficiency Resource Standards: A Progress Report on State Experience*, Report U112, 2011. Database of State Incentives for Renewables and Efficiency (DSIRE), "Rules, Regulations & Policies for Renewable Energy," http://dsireusa.org/summarytables/rrpre.cfm http://dsireusa.org/incentives/incentive.cfm?Incentive_Code=DC04R&re=0&ee=0. Database of State Incentives for Renewables and Efficiency (DSIRE), "Rules, Regulations and Policies," http://www.dsireusa.org/incentives/index.cfm?EE=1&RE=1&SPV=0&ST=0&searchtype=EERS&sh=1.

* Competition suspended as reported by Swadley & Yücel.

** ACEEE indicates that Oregon has an energy efficiency standard but DSIRE does not.

With the advent of competition in the late 1990s, energy efficiency program expenditures decreased. "To prepare for the onslaught of competition, many utilities cut discretionary spending, including DSM programs. In addition, the new regulatory environment provided utilities with fewer incentives to spend money on DSM programs, as rate-of-return regulation and IRP requirements were substantially rolled back. In the new regulatory environment, price caps and greater reliance on markets for setting electricity prices created strong incentives for utilities to cut costs and seek new opportunities to increase profits by increasing electricity sales, both of which served to diminish incentives for DSM programs ... In fact, utility DSM spending declined 55% from a high of $3.44 billion in 1993 to a low of $1.55 billion in 1999 (in 2002 dollars)..."[23] Efficiency standards are, in part, a reaction to this decline in DSM programs.

For Arizona, it is reasonable to expect a decline in energy efficiency if the Commission authorizes retail electric competition and if the Energy Efficiency Standard is eliminated.

[23] Kenneth Gillingham, Richard Newell, and Karen Palmer, "Retrospective Examination of Demand-Side Energy Efficiency Policies," Washington, DC. Resources for the Future Discussion Paper RFF DP 04-19 REV, 2004. Quote is from p. 22.

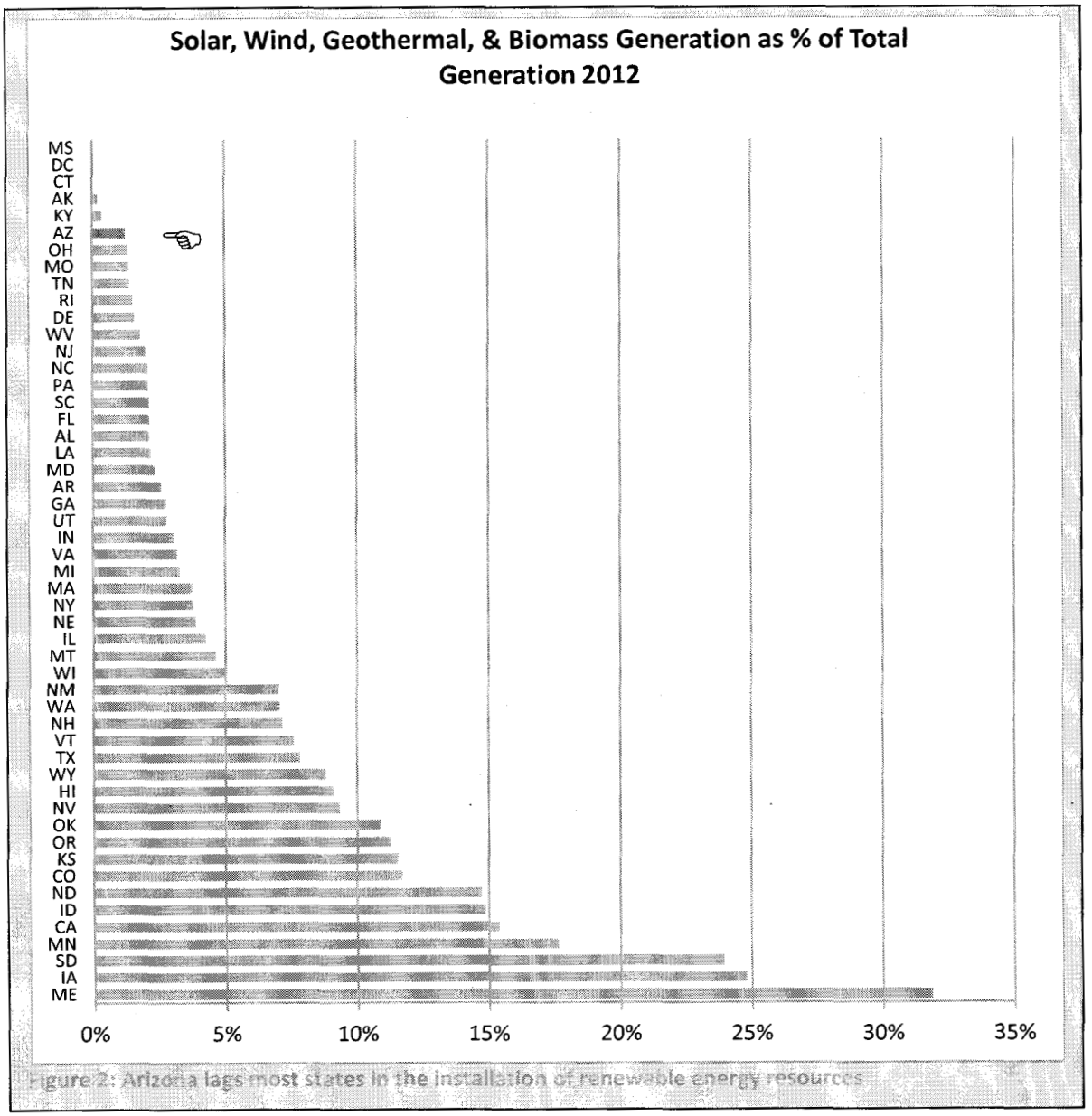

Figure 2: Arizona lags most states in the installation of renewable energy resources

Deploying efficiency resources requires overcoming barriers unrelated to who supplies electricity. That is, the need for efficiency standards exists even under competition as the barriers to greater energy efficiency do not go away with the introduction of competition. These barriers include:

- High up-front costs for some measures
- High implicit discount rates used to evaluate large capital investments
- Incomplete or incorrect information about energy efficiency
  - ✓ Out-of-sight problems (e.g., leaky ductwork)
  - ✓ Lack of information about energy efficiency
  - ✓ Uncertainty about who to trust regarding cost and performance of measures
  - ✓ Confusing processes for acquiring efficient measures

- Exclusion of environmental impacts of power generation from electricity rates
- Split incentives in rental markets where investment decisions are made by landlords but energy bills are paid by tenants
- Habitual or non-optimizing behavior.

Because of the benefits of energy efficiency, the continuation of barriers to energy efficiency, and the disinterest in energy efficiency by electricity sellers, the Commission's energy efficiency standard should be retained. The Commission may wish to consider funding energy efficiency programs through delivery system charges.

Conclusions

1. Participation in competitive markets relying on central station supply of electricity is mainly by large commercial and industrial customers. This outcome would likely apply in Arizona, where, in recent years, retail electric rates have been below the national average, especially for residential and commercial customers. Thus, at present, many Arizona residential and commercial consumers may not be strongly motivated to shop around for electric service.
2. With regard to competition among suppliers using central station generation, experience in other states is mixed. The Commission can expect, at most, modest benefits for residential and business customers. It is also possible that the net effect of competition on prices would be negligible or even adverse.
3. Consideration of competition should be an opportunity to think imaginatively about electricity supply and demand in the future, including a greater role for on-site generation and microgrids. Therefore, the Commission's competition policy should encourage on-site generation and energy storage (for example, distributed solar generation, storage technologies, and microturbines) and should be conducive to establishment of microgrids. These technologies compete with central station supply.
4. The Renewable Energy Standard and the Energy Efficiency Standard should be retained. These standards provide long term benefits such as more stable prices, less pollution, and, in the case of energy efficiency, lower costs for electric energy services.
5. If the Commission adopts retail competition, it should investigate ways to deal with the potential for capacity shortfalls and high prices during peak periods.